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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/582.806

01/11/2001

ROBERT FREY

8404

24283

7590

03/12/2004

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EXAMINER

BELL, PAUL A

ART UNIT

PAPER NUMBER

2675

DATE MAILED: 03/12/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/582,806

Applicant(s)

FREY ET AL.

Examiner

PAUL A BELL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Compact Disc Submission

1. The description portion of this application contains a computer program listing consisting of more than three hundred (300) lines. In accordance with 37 CFR 1.96(c), a computer program listing printout of more than three hundred lines must be submitted as a computer program listing appendix on compact disc conforming to the standards set forth in 37 CFR 1.96(c)(2) and must be appropriately referenced in the specification (see 37 CFR 1.77(b)(4)). Accordingly, applicant is required to cancel the computer program listing appearing in the specification on **pages 41- 58**, file a computer program listing appendix on compact disc in compliance with 37 CFR 1.96(c) and insert an appropriate reference to the newly added computer program listing appendix on compact disc at the beginning of the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1-59 and 61-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to claim 1 the phrase "communicating differences information to the computer" is not clear as to what "differences information" the applicant is referring to?

With regard to claims 4,8,9,10,11,12,24,26,38,39,40,62,64,67,69,70 and 71 the abbreviations does "PC, N, DSP, EPROM, RAM, PCI, MPEG, RS170 ,FFT, CPU, CCD, IR" make it unclear what possibilities are since abbreviation can have multiple meaning and further they change with time therefore they must be defined each time they are first used in each claim series.

Claim 58 recites the limitation "the re-calibration means" and "the event" in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 61-82 recites the limitation "A system of claim 59" in in line 1. This creates an insufficient antecedent basis problems because it appears it should of referred back to claim 60 instead. Please make clear.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-5 , 9, 31, 36, 38, 51-56, and 60 rejected under 35 U.S.C. 102(b) as being anticipated by Platzker (5,528,263).

With regard to claim 1 Platzker teaches a human motion following controller for augmenting motion of items shown on a computer display (figure 1, item 14 and 24), the display being coupled to a computer of the type which controls positioning of the items through operating system controls (figure 1, item 12), comprising a camera for capturing frames of data corresponding to a first image of at least part of a user at the computer display (figure 1, item 28a), signal processing means coupled to the camera (figure 1, item 12b) for (a) detecting differences between successive frames of data corresponding to motion of the first image, and (b) communicating differences information to the Computer to reposition display of the items through operating system controls, the items being repositioned on the display by an amount corresponding to the motion of first image (column 5, lines 10-32).

With regard to claim 2 Platzker teaches a controller of claim 1, wherein the items comprise a computer cursor (abstract and figure 5a).

With regard to claim 3 Platzker teaches a controller of claim 1, wherein the items comprise a scene view (figure 1, item 24).

With regard to claim 4 Platzker teaches a controller of claim 1, further comprising a PC card for installation within the computer and for communication on a computer bus, the signal processing means being substantially resident with the PC card for communicating differences information to the bus (such features are inherent to a computer system as shown in figure 1).

With regard to claim 5 Platzker teaches a controller of claim 1, wherein the camera comprises means for capturing augmented frames of data corresponding to a second image of part of the user at the computer display, the signal processing means further comprising means for detecting differences between successive augmented frames of data corresponding to motion of the second image and for communicating augmented difference information to the computer to reposition display of the items through operating system controls, the items being repositioned on the display by an amount corresponding to motion of the first and second images (figure 1 and 3a-c and column 5, lines 10-34).

With regard to claim 9 Platzker teaches a controller of claim 1, further comprising a DSP for implementing select algorithms on difference frames or raw frames of image data (abstract and figure 3a and 6a).

With regard to claim 31 Platzker teaches a controller of claim 1, wherein the signal processing means comprises means for repositioning the items at a selected magnification as compared to actual movement of the user (figure 1).

With regard to claim 36 Platzker teaches a controller of claim 1, further comprising at least one other camera arranged to take images of at least a second part of the user (figure 1).

With regard to claim 38 Platzker teaches a controller of claim 1, wherein the camera comprises a DSP (inherent feature because Platzker states he has a CCD and an appropriate signal processing apparatus to CCD).

With regard to claims 51- 54 Platzker teaches isolating one or more objects or symbols held by user (figure 3c).

With regard to claim 55 and 56 A controller of claim 1, further comprising a second camera constructed and arranged for viewing the user from above, the signal processing means having means for repositioning the items in response to movement detected from images in the second camera wherein signal processing means comprises means for repositioning the items in response to forward and backward movement of the user as detected by the second camera (Platzker shows a second camera in figure 1 item 28 b for example he illustrates bring the hand forward to point to a box).

With regard to claim 60 Platzker teaches a system for controlling a computer (figure 1, item 14 and 24), comprising: a transducer for converting optical signals to electrical signals electronic means for converting electronic signals to digital data (all inherent broad features of a video camera using a CCD interfacing with a computer as shown by Platzker in figure 1, column 5, lines 45-57) ; signal processor means for detecting motion in the digital data and providing a digital representation of

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said motion(figure 1, item 12b); communication means for entering one or more of the electronic signals, digital data, and digital representation into the computer to manipulate a computer display in response to the motion(column 5, lines 10-32).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 6-8, 10-30, 32, 34, 35, 40-50, 57-59, 61-65, 67,69, 73-82 rejected under 35 U.S.C. 103(a) as being unpatentable over Platzker et al. (5,528,263).

With regard to claims 6, 7, 8, 13, 15, 74 and 75 Platzker suggest difference electronics for storing and subsequently subtracting pixel-by-pixel difference data, wherein the difference electronics comprise multiple frame memory, a subtraction circuit, and a state machine controller/memory addresser to control data flow, N frame video memory for storing frames of image data, (because Platzker does state that he performs these type functions and therefore it would have been obvious that he has difference electronics as broadly claimed which perform these functions see; abstract and figures 6a and 6b, column 5, lines 10-34).

With regard to claims 10, 11, and 14 Platzker suggest controller using buffer, EPROM and RAM and interfacing his DSP to a PCI bus in the computer, (because such a practice was well known in the art and therefore made obvious since he captures data and needs to store it before processing see abstract and figure 1).

With regard to claim 12 Platzker suggest a controller of claim 1, further comprising MPEG compression electronics for compressing video for the computer, (because such a feature was well known in the art so it would have been obvious that since Platzker captures video data that such a well known device would be used).

With regard to claims 16-18, 24-26 , 76 and 77 Platzker suggest, wherein the signal processing means comprises correlation means for determining row and column shifts corresponding to differences between a current image frame and a delayed image -frame , best fit algorithm means for minimizing the shifts to provide alignment, wherein the best fit algorithm means utilizes a peak detect algorithm, a two dimensional inverse FIFT operation, a peak detect for determining a shift associated with aligning difference images, a two dimensional FFT of image data, correlation functionality, best fit motion. (because these are common well known mathematical ways of detecting patterns and figure 3a item 46 suggest this in column 2, lines 35-53 and column 6, lines 34-49).

With regard to claims 19 and 20 Platzker suggest a controller of claim 1, wherein the signal processing means comprises video cursor control for enabling and alternatively disabling cursor control, wherein the video cursor control comprises means responsive to keystrokes at the Computer, (because Platzker illustrates a program and hardware connected to a PC and it would have been obvious that one has the ability to turn program off and go back to conventional mouse control and other keystrokes at the computer).

With regard to claims 21, 27-29, 40-46, 50 Platzker suggest a controller , wherein the video cursor control comprises means responsive to a blink of an eye, or

the user the parts being selected from the group of a hand, elbow, head, neck, ears, and forehead, (because since the Platzker apparatus illustrates the principle of operation of being responsive to a body part such as a hand it would have been an obvious modification to also detect movement of another body part such as head or eye especially since eye, head and other body part detection methods are well known in the art and further one would have been motivated to do so because it gives the user more control options or functions).

With regard to claims 22 and 23 Platzker suggest a controller, wherein the video cursor control comprises means responsive to sound generated by the user and further comprising a microphone to detect the sound (because Platzker teaches a camera and it would have been common for a video camera to have a microphone and since voice recognition is also well known and sound controlled computers used by disabled people are well known it would be obvious to add this additional feature).

With regard to claim 30 Platzker suggest a controller of claim 1, wherein the signal processing means comprises means for repositioning the items, if appropriate, at approximately every $1/30$ th of a second (because this is just the well known video update rate commonly used to avoid flicker in the image therefore it would have been obvious to do so).

With regard to claim 32 Platzker suggest controller of claim 1, wherein the signal processing means comprises means for storing image data of a head of the user at various orientations relative to the camera and for correlating image data to the stored image data to define head orientation, the head orientation being used to reposition the

items (because since Platzker illustrates this for the hand it would have been obvious that the system can be modified to respond to the head).

With regard to claim 34 Platzker suggest , wherein the items correspond to computer gaming display images (because such images displayed are similar to video games it would been merely viewed as an obvious intended use of the system to play games).

With regard to claim 35 Platzker suggest, wherein the heat corresponds to user stress, (because Platzker illustrates a user standing in front of an audience under lights and this situation is well known to cause stress in a user and this will increase body temperature which reads on heat).

With regard to claims 47-49 Platzker suggest Zoom control and automatic focus, (because Platzker illustrates a video camera and such functional features are well known in the prior art of video cameras so therefore it would have been obvious the motivation to use them for getting the best picture and make the camera more easy to use).

With regard to claims 57-59 Platzker suggest a controller of claim 1, further comprising re-calibration means connected with the signal processing means for repositioning the items to an original position in response to a re-calibration event and re-calibration means for detecting a blink of the user (because the benefits of calibration was well known in the prior art and Platzker would want to keep his equipment in calibration to get accurate results which is the motivation to do re-calibration as broadly claimed and voice recognition control is well known also and therefor obvious).

With regard to claim 61 Platzker teaches a system of claim 59, wherein the computer comprises the signal processor means (column 5, lines 10-22).

With regard to claim 62 Platzker teaches a system of claim 59, wherein said signal processor comprises a digital signal processor separate from a CPU within the computer (column 5, lines 10-22).

With regard to claim 63 Platzker teaches a system of claim 59, wherein the transducer, electronic means and signal processor are constructed and arranged into a single device in communication with the computer (figure 1 items 28a and 12b).

With regard to claim 64 Platzker suggest a system of claim 59, wherein the communication means comprises one of RS170 video, a PCI bus interface, a digital computer interface, a serial computer interface and transducer generates RS170 output, (because Platzker teaches a video camera and it would have been obvious to use the well known standard camera output such as RS170 because nonstandard outputs would have been more costly and require more engineering modifications).

With regard to claim 65 Platzker suggest a system of claim 59, further comprising means for repositioning a computer cursor in response to the motion (figure 1, item 32).

With regard to claim 67 Platzker suggest a system of claim 59, wherein the transducer comprises a CCD camera having at least 2x2 imaging pixels (because the Platzker camera captures what the eye can see on the screen it was likely the common 512X460 imaging pixels at least which reads on this broad limitation).

With regard to claim 69 Platzker teaches a system of claim 59, wherein the transducer comprises one of a CCD or a CMOS integrated circuit with digital outputs (column 5, lines 45-57).

With regard to claim 73 Platzker teaches a system of claim 59, wherein -the signal processor comprises a video frame memory (column 5, lines 31-32).

With regard to claim 78 Platzker a system of claim 59, further comprising means for controlling cursor movement (figure 1, item 32).

With regard to claim 79 Platzker teaches a system of claim 59, further comprising means for segmenting video images to provide multiple digital representations of the motion corresponding to different portions of the digital representation (figures 3b, 3c and 4, column 7, lines 22-29).

With regard to claim 80 Platzker teaches a system of claim 78, wherein the optical signals are generated through image acquisition of a portion of a human (figures 1, 3b, 3c and 4).

With regard to claim 81 Platzker teaches a system of claim 78, wherein the optical signals are generated by viewing multiple features of a human (figures 1, 3b, 3c and 4).

With regard to claim 82 Platzker teaches A system of claim 59, further comprising neural net means for learning user motion over time (figure 4, column 6, lines 40-49).

8. Claims 37, 39, 66, 70, 71, 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Platzker (5,528,263) in view of Hutchinson (4,950,069).

Platzker does not teach "a controller of claim 35, wherein the one other camera takes image data in a second electromagnetic spectrum" however Hutchinson does teach a camera that works in a second electromagnetic spectrum being Infrared (SEE Hutchinson figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the Platzker second camera Infrared because Hutchinson provides motivation in column 9, lines 17-34.

With regard to claim 39 the limitation were addressed above.

With regard to claim 66 the combination of Platzker and Hutchinson teaches transducers with CCD camera and IR camera (See Hutchinson column 9, line 17-34).

With regard to claim 68 Platzker was shown above to meet this limitation.

With regard to claims 70 and 71 the combination of Platzker and Hutchinson suggest RS170 output because it would have been obvious to use well known standard camera output such as RS170 because nonstandard outputs would be more costly.

With regard to claim 72 the combination of Platzker and Hutchinson suggest the transducer generates digital resolutions of 4 bits or greater because the standard output is 8 bit so 4 bit would have been obvious.

Allowable Subject Matter

9. Claim 33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Bell whose telephone number is (703) 306-3019.

If attempts to reach the examiner by telephone are unsuccessful the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377 can help with any inquiry of a general nature or relating to the status of this application.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

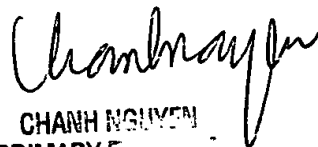
Or Faxed to: (703) 872-9306

Or Hand-delivered to: Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor
(Receptionist).


Paul Bell

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March 8, 2004


CHANH NGUYEN
PRIMARY EX